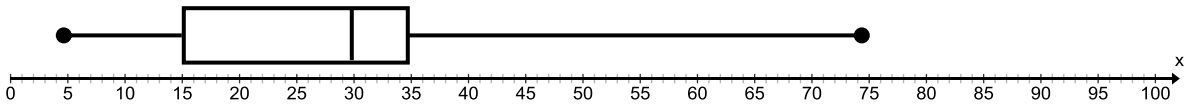
7th Grade Unit 4 Study Guide



1. Median? **30**
   Median is the middle point of the data.
2. Range? **70** (75 – 5 = 70)
   Range is the distance between the highest and lowest point. CC.SP.2

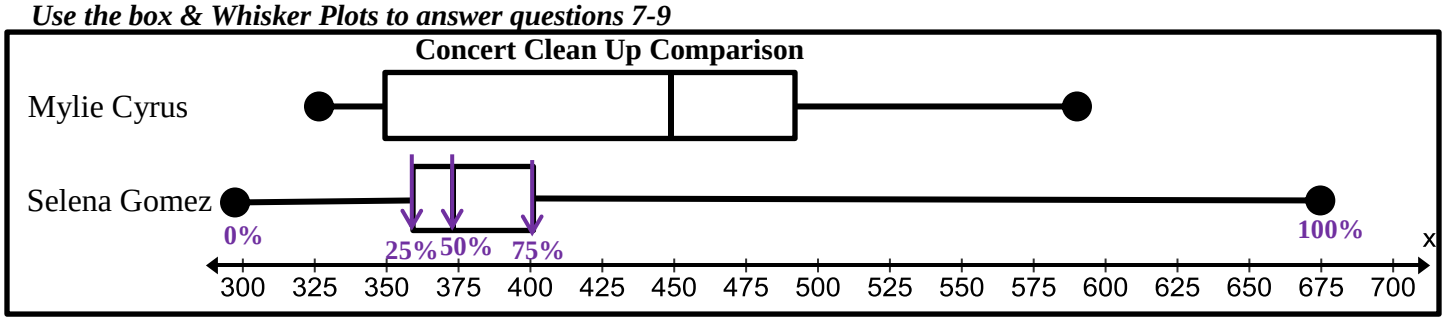
3. Given the following set of data, what is the range? (2, 23, 34, 74, 21, 8, 9, 65) 74-2=72, so answer is **72** CC.SP.2

4. What is the mean of the following numbers? **500, -320, 47, -16, -119, 622** **Mean = 119** CC.SP.2
   To find the mean, add up the 7 numbers to get 714. Then divide 714 by 7 and you get 119.

Decide if the scenarios are valid random samples. Then tell why or why not:

5. Survey every 10th person leaving a Dallas Cowboys game to find out what is the most popular football team in the USA. ***Not a valid sample because most people at the Cowboys' game will be Cowboys fans and say their team is the most popular.*** CC.SP.1
6. Survey every 10th person at Walmart to find out which laundry detergent is most popular. CC.SP.1
   This is a valid sample because nearly everyone goes to Walmart and they asked every 10th person.

Use the box & Whisker Plots to answer questions 7-9



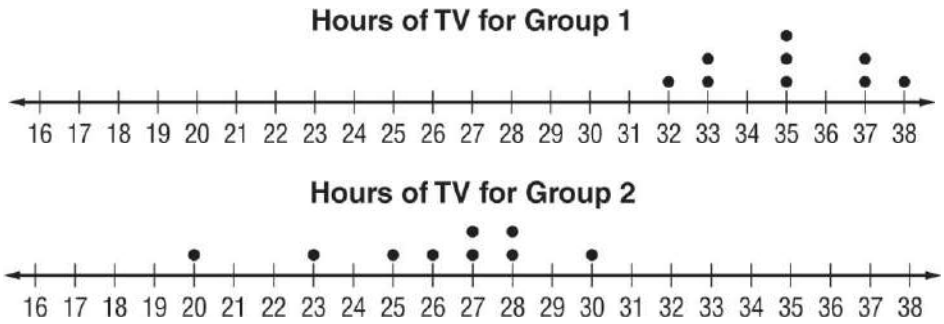
7. How much greater is the median cost of cleaning up after a Cyrus concert than a Gomez concert? CC.SP.3
   450(Cyrus) – 375(Gomez) = **$75, so the median for Cyrus is $75 more than for Gomez.**
8. 75% of the time, cleanup after a Selena Gomez concert costs $_**400**__ or less. CC.SP.4
   See purple % notes and arrows above to see what each line in the box means..
9. Which singer appear to have a more predictable cleanup cost? Explain why.
   Gomez is more predictable because the box shows that half the time her costs are $360-$400 (only $40 range).
   Cyrus' box shows that half the time her cleanup costs are $350-$490 (a $140 range). CC.SP.4

10. In which of the following cases would you survey a sample instead of the whole population? CC.SP.1

Sample of population A. China wants to know how many beds most families have in their homes.
Whole Polulation B. You want to know how many kids in your class play soccer.
Whole Polulation C. Grandma wants to know how many people are coming to dinner.
Sample of population D. FOX wants to know how many people watched American Idol last night.

11. A new school wants to find out what colors they should choose for their school colors. Which of the following samples would best represent the whole school population? CC.SP.1

A. Survey every tenth student as they leave Chorus practice. *No, it leaves out all students who are not in chorus.*
B. At football practice, survey every third player as they take a water break. *No, leaves out all not on football team.*
C. Put all students' names in a hat and survey the first 100 pulled from the hat. ***Yes, all students have an equal chance of being chosen.***



12. Find and compare the MEAN number of TV hours for group 1 and for group 2.
Group 1 = **35** Group 2 = **26**
Group **1**'s MEAN was **9** higher than Group **2**'s. CC.SP.4

13. Find and compare the MEDIANS for Group 1 **35** and for Group 2 **27** .
Group **1**'s MEDIAN was **8** more hours of TV than Group **2**'s. CC.SP.4

Tricky One!

Which Is Your Favorite Pet?

Class	Cats	Dogs	Fish	Total
7th Grade	**36**	**55**	**9**	**100**
8th Grade	**34**	**57**	**9**	**100**

14. List the pets in order of most favorite to least favorite. *Dogs, cats, fish* CC.SP.2

15. **35** % chose cats; **56** % chose dogs; **9** % chose fish CC.SP.2
$\frac{36+34}{200} = \frac{x}{100}$ $x = 35$ $\frac{55+57}{200} = \frac{x}{100}$ $x = 56$ $\frac{9+9}{200} = \frac{x}{100}$ $x = 9$

Yummy Fruits got a shipment of 400 baskets of apples. They want to find out how many total apples were in the shipment but they didn't have the time to count all of them, so they counted the apples in some of the baskets and recorded it in the chart below.

Basket Code	A1	M1	X1	G2	Z2	S3	J4	Q5	P6	N7
# of Apples	23	29	34	33	22	38	28	27	36	35

Use the random sample above to draw inferences:

16. How many apples are most likely to be in one basket? Find MEAN = **30.5** CC.SP.2
17. How many apples did Yummy Fruits probably get in the shipment all together? **12,200 apples** CC.SP.2
Multiply 30.5 (average number of apples in 1 basket) by 400 (the total number of baskets Yummy Fruits received).

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18. Find the Mean Absolute Deviation of the following scores: **5, 5, 6, 7, 8, 8, 10, 10, 10, 11** CC.SP.3

Mean Absolute Deviation (MAD) is 2

Explanation: *Find the mean of the numbers (**8**) and then see next page.*

Decide if the following survey questions are BIASED or NOT?

19. In the election, will you vote for that lazy Lucy or will you vote for nice Nancy? BIASED (lazy or nice?)

20. What is your favorite animal between dogs, snakes, cats, and birds? NOT BIASED

21. On a scale of 1 to 5, how happy are you in your boring math class? BIASED (boring math class? No way!)

Number	*Mean*	*Absolute value of distance from the mean*
5	*8*	*3*
5	*8*	*3*
6	*8*	*2*
7	*8*	*1*
8	*8*	*0*
8	*8*	*0*
10	*8*	*2*
10	*8*	*2*
10	*8*	*2*
11	*8*	*3*
	Add column 3 →	*18*
	Divide to find MAD →	**1.8**